CLAIMS

What is claimed is:

1. A fan motor assembly with integrated redundant availability, said fan motor assembly comprising:

a fan motor subassembly comprising a plurality of replaceable fan motors;

a fan motor selector mechanism coupled to said fan motor subassembly, said fan motor selector mechanism configured to selectively engage one of said plurality of replaceable fan motors to a fan; and

a control unit coupled to said fan motor selector mechanism, said control unit configured to control said fan motor selector mechanism such that a first of said plurality of replaceable fan motors mechanically powers said fan while a second of said plurality of replaceable fan motors can be dynamically removed from said fan motor subassembly.

2. The fan motor assembly of Claim 1 wherein said second of said plurality of replaceable fan motors causes said fan motor subassembly to move from a first position to a second position wherein said second of said plurality of fan motors is engaged to said fan.

3. The fan motor assembly of Claim 1 wherein said first of said plurality of replaceable fan motors and said second of said plurality of replaceable fan motors comprise a redundant power source.

4. The fan motor assembly of Claim 1 wherein said control unit further comprises:

a fan motor performance monitoring unit configured to determine a performance characteristic of said first of said plurality of replaceable fan motors and said second of said plurality of replaceable fan motors.

5. The fan motor assembly of Claim 4 wherein said fan motor performance monitoring unit comprises:

a tachometer configured to determine the rotational speed at which said first of said plurality of replaceable fan motors causes said fan to rotate;

a current measuring device configured to determine the amount of current used by said first of said plurality of replaceable fan motors; and

a comparator configured to compare a measured performance characteristic of said first of said plurality of replaceable fan motors with a specified fan motor performance requirement.

6. The fan motor assembly of Claim 1 wherein said first of said plurality of replaceable fan motors and said second of said plurality of replaceable fan motors exhibit substantially different power characteristics.

7. The fan motor assembly of Claim 6 wherein said control unit can be programmed to selectively engage one of said plurality of replaceable fan motors with said fan.

8. A fan motor assembly configured to provide integrated redundant fan motor availability, said fan motor assembly comprising:

a fan motor subassembly comprising a first replaceable fan motor and a second replaceable fan motor;

a fan motor selector mechanism coupled to said fan motor subassembly, said fan motor selector mechanism configured to selectively dispose said first replaceable fan motor or said second replaceable fan motor in an orientation for driving a fan;

a control unit coupled to said fan motor selector mechanism, said control unit configured to control said fan motor selector mechanism such that said first replaceable fan motor is disposed in said orientation for mechanically driving said fan while said second replaceable fan motor can be removed from said fan motor subassembly.

9. The fan motor assembly of Claim 8 said second replaceable fan motor causes said fan motor subassembly to move from a first position to a second position wherein said second replaceable fan motor is engaged to said fan and said first replaceable fan motor is simultaneously disengaged from said fan.

10. The fan motor assembly of Claim 8 wherein said first replaceable fan motor and second replaceable fan motor comprise a redundant power source for said fan motor assembly .

11. The fan motor assembly of Claim 8 wherein said control unit further comprises:

a fan motor performance monitoring unit configured to determine a performance characteristic of a first fan motor removably coupled to said first fan motor receptacle.

12. The fan motor assembly of Claim 11 wherein said fan motor performance monitoring unit comprises:

a tachometer configured to determine the rotational speed at which said first of said plurality of replaceable fan motors causes said fan to rotate;

a current measuring device configured to determine the amount of current used by said first of said plurality of replaceable fan motors; and

a comparator configured to compare a measured performance characteristic of said first of said plurality of replaceable fan motors with a specified fan motor performance requirement.

13. The fan motor assembly of Claim 8 wherein said first replaceable fan motor and said second replaceable fan motor exhibit substantially different power characteristics.

14. The fan motor assembly of Claim 13 wherein said control unit programmably selectively engages one of said first replaceable fan motor and said second replaceable fan motor with said fan.

15. A method for providing redundant availability in a fan system, said method comprising:

coupling a first replaceable fan motor and a second replaceable fan motor in a fan motor subassembly disposed in a first orientation for driving a fan with said first fan motor;

monitoring a performance characteristic of said first fan motor;

comparing a measured performance characteristic of said first fan motor with a specified fan motor performance requirement; and

provided said measured performance characteristic of said first fan motor does not meet said specified fan motor performance requirement, automatically disposing said fan motor subassembly in a second orientation for mechanically driving said fan with

said second fan motor while simultaneously disposing said first replaceable fan motor in a position wherein it can be removed from said fan motor subassembly.

16. The method for providing redundant availability in a fan system as recited in Claim 15 further comprising utilizing said second replaceable fan motor to drive said fan motor subassembly to said second orientation.

17. The method for providing redundant availability in a fan system as recited in Claim 15 wherein said monitoring of said performance characteristic of said first fan motor comprises an current measuring device to determine the amount of current used by said first fan motor.

18. The method for providing redundant availability in a fan system as recited in Claim 15 wherein a control unit coupled with a fan motor selector mechanism can be programmed to select said second replaceable fan motor.

19. The method for providing redundant availability in a fan system as recited in Claim 15 wherein said control unit is programmed to conform to a logic scheme which defines motor engagement rules that are based upon monitoring sensor input.